

**REMARKS**

**Status of the Claims**

Claims 1-17 are currently pending in this application. Of these, the Office has withdrawn claims 10-13 from consideration as drawn to non-elected subject matter. Thus, claims 1-9 and 14-17 are under examination.

**Objections to the Specification**

The Office maintains the objection to the arrangement of the specification under 37 C.F.R. 1.77(b) for lacking specific section headings, though the Office again acknowledges that these headings are not required. (Office Action at page 2, paragraph 7.)

Applicants reiterate that the instant application is based on Application No. 100 22 092.4, which was originally structured for filing in the German patent office without headings. Applicants demur from adding section headings because characterization of certain parts of the specification as "Field of the Invention" or "Background of the Invention" can lead to inadvertent admissions against interest when an application was not originally structured to accommodate them.

For example, an application originally structured without headings may interweave discussions of the prior art with comparisons to the claimed invention, upon which the inventors seek to rely for support. If such a segment of the specification were to be labeled "Background of the Invention" or "Description of the Related Art," an applicant might be prevented from relying on it in support of the claims. More importantly, these headings are merely preferred, and are not required by statute.

Therefore, to avoid possible error, Applicants respectfully request that this objection be withdrawn.

The Office also maintains that the specification allegedly does not contain antecedent support for a saccharide of "more than 1.5 g/ml" recited in original claim 5. (Office Action at page 3.) Yet, Applicants previously directed the Office to the paragraph at page 6, lines 1-6, which recites: "Mixtures of a saccharide in a concentration of **more than 1.5 g/ml** with one or more of the abovementioned amino acids in concentrations of over 0.5 mol/l . . ." Applicants submit that this statement provides antecedent support for the phrase in original claim 5, and respectfully request the withdrawal of this objection.

#### **Rejection of Claims 1-6, 8, and 17 under 35 U.S.C. § 102(b)**

The Office continues to reject these claims as allegedly anticipated by U.S. Patent No. 4,623,717 ("the '717 patent"). Applicants respectfully traverse this rejection.

Applicants respectfully submit that the Office has not made *prima facie* case of anticipation. In order for a reference to anticipate a claim, the reference must teach each and every element of that claim, either expressly or inherently, and in as much detail as the claim itself. M.P.E.P. § 2131; *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987); *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). The '717 patent does not teach all of the elements of Applicants' claims.

First, Applicants previously amended claim 1 to recite that the composition comprises, *inter alia*, "more than 0.5 mol/l of each of two or more amino acids chosen from arginine, lysine, histidine, phenylalanine, tryptophan, tyrosine, aspartic acid and its

salts, and glutamic acid and its salts; wherein one of said amino acids is glutamate.” Accordingly, the overall composition of claim 1 must, among other things, include more than 1.0 mol/l (or 1.0 M) of total amino acids. In addition, the composition of claim 6 must include more than 1.3 mol/l of total amino acids (more than 0.5 mol/l of one amino acid, and more than 0.8 mol/l of a second amino acid). In contrast, the total amino acid concentration of the ‘717 compositions is limited to “in the range of about 0.05 M to about 0.8 M, preferably about 0.1 M to about 0.65 M,” while the examples use no more than 0.62 M total amino acid. (‘717 at col. 5, lines 22-40, col. 10, lines 10-60, and claim 15.)

Nevertheless, the Office assumes, without support, that “about 0.8 M” includes amounts greater than 1.0 M, and as high as 1.1 M. (Office Action at page 5.) Yet, the ‘717 patent itself does not define “about” in such a way. Moreover, the Office does not provide any evidence or scientific reasoning to explain why one of ordinary skill in the art would believe that “about 0.8 M” encompasses values greater than 1.0 M, such as 1.1 M. Indeed, there is a 37.5% difference in concentration between 0.8 M and 1.1 M. Thus, Applicants respectfully submit that this contention is merely a conclusory statement unsupported by the evidence of record.

The Federal Circuit has recently directed that the Office cannot base a *prima facie* case on conclusory statements, but “must set forth the rationale on which it relies.” *In re Lee*, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (citations omitted). Therefore, the burden is on the Office to provide a credible factual basis in support of this rejection, consistent with the substantial evidence standard of *In re Zurko*, 59 U.S.P.Q.2d 1693 (Fed. Cir. 2001).

Second, unlike in the '717 patent, the compositions of claim 1 require that one of the chosen amino acids must be glutamate. Applicants submit that one of ordinary skill in the art cannot envision Applicants' claimed genus requiring glutamate and one of the other listed amino acids of claim 1 from reading the '717 patent's disclosure. For example, the '717 patent at col. 5, lines 22-28, lists 18 different amino acids and notes, only in a very general statement, that "one may employ" those amino acids "and the like and mixtures thereof." The number of possible "mixtures" of these 18 amino acids represents a genus with hundreds or thousands of species. For example, there are more than 150 different possible combinations of two amino acids from the list of 18 recited in the '717 patent, as well as many combinations of three, four, or five amino acids. At the same time, one of ordinary skill cannot envision Applicants' claimed genus from the "preferred" amino acids of the '717 patent, arginine, lysine, and glycine, because these "preferred" amino acids do not include glutamate. (The '717 patent at col. 5, lines 38-40.) Moreover, glycine, one of the '717 patent's preferred amino acids, is not among those listed in the instant claim 1. (*Id.*)

Finally, the Office has included independent claim 17 in this anticipation rejection. However, Applicants' comments above apply even more strongly to this claim. Claim 17 first requires two specific amino acids or their salts: sodium glutamate and arginine. In order for this combination to be anticipated by the '717 patent, one of ordinary skill in the art must be able to envision that specific combination from the hundreds or thousands of possibilities provided by the "mixtures" of 18 different amino acids of col. 5 of the '717 patent. Claim 17 also requires a specific amount of each of those amino acids that is well above the amounts disclosed in the '717 patent. The claim requires

1.5 mol/l of each of these amino acids, for a total of 3.0 mol/l. Applicants submit that 3.0 mol/l is not reasonably encompassed within the "about 0.8 M" recited by the '717 patent. Indeed, it is 375% more than the maximum amount of amino acid that the '717 patent calls for.

For all of these reasons, Applicants submit that the Office has not established a *prima facie* case of anticipation, and respectfully request the withdrawal of these rejections.

#### Rejection of Claims 1, 7, and 9 under 35 U.S.C. § 103(a)

The Office maintains the rejection of claims 1, 7, and 9 as allegedly obvious over the '717 patent in view of U.S. Patent No. 4,960,757 ("the '757 patent"). Applicants traverse this rejection.

A *prima facie* case of obviousness must meet several essential requirements. M.P.E.P. § 2142. The combination of references must teach or suggest, in combination with the prior art, all of the claim elements or limitations. M.P.E.P. § 2143.01. There must also be a suggestion or motivation in the references themselves, or in the general knowledge available to one of ordinary skill in the art, to modify or combine the teachings of the references so as to produce the claimed invention. M.P.E.P. § 2143.01. Further, the mere fact that the references *can* be combined or modified does not itself render the combination obvious. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). The modification or combination must be **desirable**, not merely feasible. M.P.E.P. § 2143.01; *Winner v. Wang*, 53 U.S.P.Q.2d 1580, 1587-8 (Fed. Cir. 2000). Finally, there must be a reasonable expectation of success in performing the combination. M.P.E.P. § 2143.01. The Office bears the burden to show why "the

skilled artisan, with no knowledge of the claimed invention, would have selected *these components in the manner claimed.*" *In re Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002), quoting *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000) (emphasis added).

The Office asserts that the '717 patent anticipates claim 1, and that it differs from the invention of claims 7 and 9 by failing to teach the addition of a "soluble calcium salt." The Office relies upon the '757 patent to provide a teaching of calcium salts.

However, as explained in the preceding section, the '717 patent does not anticipate claim 1. First, it does not teach a total amino acid concentration of more than 1.0 M, as required by claim 1. Second, it does not teach any requirement for glutamate. Nor do the '717 and '757 patents render claim 1 obvious because the teachings of those patents, in light of the prior art, do not provide one of ordinary skill in the art with a desire to select the genus of amino acids that Applicants claim.

Again, the compositions of claim 1, as well as those of claims 7 and 9, require glutamate. Applicants submit that one of ordinary skill in the art would not envision Applicants' claimed genus requiring glutamate from the '717 patent's disclosure. For example, the '717 patent at col. 5, lines 22-28, lists 18 different amino acids and notes, only in a very general statement, that "one may employ" those amino acids "and the like and mixtures thereof." The number of possible "mixtures" of these 18 amino acids represents a genus with hundreds or thousands of species. For example, there are more than 150 different possible combinations of two amino acids from the list of 18 recited in the '717 patent, as well as many combinations of three, four, or five amino acids. Thus, in order to obtain the instant, claimed genus of amino acids, one would

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have to pick and choose from hundreds, perhaps thousands of possibilities. See, e.g., *In re Baird*, 29 U.S.P.Q.2d 1550 (Fed. Cir. 1994). At the same time, one of ordinary skill cannot envision Applicants' claimed genus from the "preferred" amino acids of the '717 patent, arginine, lysine, and glycine, because these "preferred" amino acids do not include glutamate, and because glycine is not recited in Applicants' claim 1. (The '717 patent at col. 5, lines 38-40.)

The '757 patent does not remedy this deficiency in the '717 patent. The only amino acid that the '757 patent mentions by name is glycine, which is also one of the three preferred amino acids in the '717 patent. Therefore, one of ordinary skill in the art, looking at these two patents, would have no desire to select glutamate as a necessary component of his compositions. He would most likely choose glycine. Yet, glycine is not recited in the instant claim 1. Thus, this combination of patents would not lead one of ordinary skill in the art to Applicants' claimed invention.

Second, Applicants' claims require "two or more" amino acids. The '717 patent suggests no particular advantage in using more than one amino acid. For example, while that patent's examples include combinations of glycine, arginine, or lysine, those patentees found that low concentrations of glycine, arginine, or lysine alone also stabilized proteins advantageously. (See, e.g., the table in Example 6, col. 11, showing that the combination of glycine and arginine was inferior to a lower concentration of arginine alone; see also the discussion of the results of Examples 2-6 at col. 9, lines 38-55, col. 10, lines 47-59, and col. 11, lines 21-25 and 49-55.) In addition, the more general statements indicate that one amino acid is sufficient. (Col. 5, lines 22-40.)

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Again, the '757 patent does not teach or suggest that two or more amino acids should be used in a stabilized protein preparation. It simply comments that one may use "amino acids" in general at col. 2, lines 1-4, while its working example uses solely glycine. (See, col. 2, lines 63-68.) Thus, the combination of the '717 and '757 patents does not suggest that there is any advantage in using more than one amino acid.

Finally, as mentioned above, motivation to combine or modify references turns on whether the combination is *desirable*, not on whether it is merely feasible. M.P.E.P. § 2143.01; *Winner v. Wang*, 53 U.S.P.Q.2d 1580 (Fed. Cir. 2000). For example, the Federal Circuit in *Winner* considered whether patent claims directed to an automobile anti-theft device were obvious in light of four prior art references. *Id.* at 1582-3 and 1586-7. The claimed device uses a ratcheting mechanism to lock onto a car's steering-wheel. One prior art reference disclosed a similar steering-wheel locking device (a.k.a. "The Club") that locks onto the steering-wheel by a dead-bolt mechanism instead of by a ratcheting mechanism. Another reference disclosed a steering-wheel locking device that uses a ratcheting mechanism. *Id.* at 1583. The Federal Circuit concluded that the claims were not obvious because nothing in any of the cited references suggested that any problem would be overcome in replacing a dead-bolt mechanism with a ratcheting mechanism. 53 U.S.P.Q.2d at 1587. In other words, "there was no apparent disadvantage to the dead-bolt mechanism." *Id.* Thus, the combination of references would, at best, produce a feasible result, but not a desirable result. *Id.*

Similarly, here, the '717 patent and '757 patents do not teach that there are any disadvantages with using glycine, for example, in combinations with arginine or lysine, to stabilize proteins. In fact, the '717 patent teaches that low concentrations of glycine,

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lysine, or arginine give particularly advantageous stabilization to Factor VIII. (See discussion above.) Thus, there is no motivation for one of skill in the art to look beyond the teachings of that reference and use low concentrations of its preferred amino acids. While it might be feasible to use glutamate-based combinations of two or more amino acids, the '717 and '757 patents do not expressly or implicitly suggest that one of ordinary skill in the art should actually do so.

For all of these reasons, Applicants submit that the Office has not presented a *prima facie* case of obviousness, and respectfully request the withdrawal of this rejection.

**Rejection of Claims 1-6, 8, 14-15, and 17 under 35 U.S.C. § 103(a) and Statement of Common Ownership of the 6,514,940 B2 Patent**

The Office rejects these claims as allegedly obvious over U.S. Patent No. 6,514,940 B2 ("the '940 patent") in view of the '717 patent discussed above. Applicants traverse this rejection.

The '940 patent, which was both published and issued after the instant application was filed, and the present application were, at the time of the present invention, co-owned by Aventis Behring GmbH, as evidenced by the attached assignment records. (See 35 U.S.C. § 103(c); M.P.E.P. § 706.02(I)(2) and § 804.03.) Thus, Applicants submit that the '940 patent is not prior art against the instant invention, and request the withdrawal of this rejection.

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**Rejection of Claims 7, 9, and 16 under 35 U.S.C. § 103(a) and Statement of Common Ownership of the 6,514,940 B2 Patent**

The Office also rejects claims 7, 9, and 16, over the combination of the '940 patent, in view of the '717 patent, the '757 patent, and U.S. Patent No. 5,043,428. Applicants also traverse this rejection.

Again, the '940 patent, which was both published and issued after the instant application was filed, and the present application were, at the time of the present invention, co-owned by Aventis Behring GmbH, as evidenced by the attached assignment records. (See 35 U.S.C. § 103(c); M.P.E.P. § 706.02(I)(2) and § 804.03.) Thus, Applicants submit that the '940 patent is not prior art against the instant invention, and request the withdrawal of this rejection.

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**CONCLUSION**

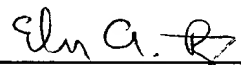
In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this reply, the reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any required fees not submitted herewith to our Deposit Account No. 06-0916.

Respectfully submitted,

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